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ABSTRACT

This paper describes a computer scoring program, written in Commodore BASIC, that offers an efficient approach to the scoring of the Leadership Scale for Sports (LSS). The LSS measures: (1) the preferences of athletes for specific leader behaviors from the coach; (2) the perception of athletes regarding the actual leader behavior of their coach; (3) the coach's perception of their leader behavior; and (4) the "ideal" leader behavior. The instrument consists of five dimensions of leader behavior in sports: (1) one direct task factor--training and instruction; (2) two decision style factors--democratic and autocratic; and (3) two motivational factors--social support and positive feedback. Information is provided on the hardware required, the organization of the LSS scoring program, and the modes of input desired from the user. A sample runoff is included. (JD)

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BASIC Computer Scoring Program for the Leadership Scale for Sports

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BASIC Computer Scoring Program for the Leadership Scale for Sports

The Leadership Scale for Sports (LSS) (Chelladurai & Saleh, 1980) is a leadership behavior instrument used to measure (1) the preferences of athletes for specific leader behaviors from the coach, (2) the perception of athletes regarding the actual leader behavior of their coach, (3) the coach's perception of their leader behavior, and (4) the "ideal" leader behavior. The LSS consists of five dimensions of leader behaviors in sports. The dimensions include one direct task factor (Training and Instruction), two decision style factors (Democratic and Autocratic Behavior), and two motivational factors (Social Support and Positive Feedback). The LSS provides the researcher with a valuable tool for the analysis of coaching behavior and it's effectiveness. The present paper describes a computer scoring program, written in Commodore BASIC, which offers an efficient approach to the scoring of the LSS.

The LSS scoring program has several significant features:[1] (1) The program computes the five dimension scores, along with standard

deviations, for individual and group data; (2) The program is capable of creating sequential data files, which then serve as input for the scoring program; (3) Data may be input from the keyboard or a sequential data file; (4) The program provides video output for ease of recording; (5) The program is easy to use and requires little knowledge of programming or computer operations; (6) Although written in Commodore BASIC, the program is easily adaptable to computers which run BASIC programs.

Hardware Requirements

The program is written in Commodore BASIC, making it compatible with Commodore PET/CBM 4032 and 8032 computers and the Commodore 64 and 128. In addition, the program is adaptable to all computers which run BASIC programs. Along with the computer, an appropriate disk drive and monitor are required. The programs are stored on a diskette, formatted to operate with 4040, 2031, and 1541 disk drives and other non-Commodore drives compatible with the Commodore system.

LSS Scoring Program

The program is organized around the type of input desired from the user. Two modes of input, (1) keyboard, and (2) sequential data file may be

used. To create a sequential data file, the user selects the data file option and subsequently specifies a filename for the data. The program will prompt the user to enter a particular data point for a particular subject's LSS item number (1 through 40). While entering the data, the user may proofread and correct the data as needed. The data then can be saved on a diskette and used for input.

Following the creation of a data file, or the rejection of this option, the user is required to select the mode of input to be used (keyboard or data file). If the data file input mode is selected, the program will ask for the data filename and immediately load the file and begin input. The program will compute dimension scores and standard deviations one subject at a time, providing video output (see Table 1) for each subject, concluding with video output of group results.

Insert Table 1 about here

The keyboard input option requires the user to enter data, one subject at a time. Subsequent to each subject's data input, the program will compute

dimension scores and standard deviations, providing video output (see Table 1) for each subject, concluding with video output of group computations.

Following video output of group results from keyboard and data file input, the program will prompt the user to indicate if more data is to be input. If yes, the program will require the user to indicate if a new data file is to be created, followed by the mode of input to be used. If the response is no, the program will exit to BASIC.

The statistical software package "Statistical programs for Commodore Computers" (Pittenger & Hodge, 1986), would be a powerful and efficient aid in LSS data analyses. The package consists of several common statistical analyses and two utility programs to facilitate the use of the statistical analyses.

References

Chelladurai, P. & Saleh, S. D. (1980). Dimensions of leader behavior in sports: Development of a leadership scale. Journal of Sport Psychology, 2(1), 34-45

Pittenger, D. J. & Hodge, M. H. (1986). Statistical programs for Commodore computers. Behavior Research Methods, Instruments, & Computers, 18(1), 50-52.

Footnote

[1]A hard copy of the LSS scoring program and comprehensive instructions, may be obtained at no cost from the author (Daniel J. Garland, Department of Psychology, University of Georgia, Athens, Georgia, 30602).

Table 1

Video Output of LSS Dimension Scores and Standard Deviations

LSS Dimension Scores and Standard Deviations for Subject ??	
Training and Instruction	
Dimension Score	??
Standard Deviation	??
Democratic Behavior	
Dimension Score	??
Standard Deviation	??
Autocratic Behavior	
Dimension Score	??
Standard Deviation	??
Social Support	
Dimension Score	??
Standard Deviation	??
Rewarding Behavior	
Dimension Score	??
Standard Deviation	??

Note: Video output of group results is similar to individual output.

LSS Computer Scoring Program

```
10 REM DANIEL J. GARLAND
20 REM UNIVERSITY OF GEORGIA
25 REM THIS PROGRAM WILL COMPUTER SCORE
30 REM THE LEADERSHIP SCALE FOR SPORT
40 REM (LSS): CHELLADURAI, P. AND SALEH, S. D. (1980)
210 REM VARIABLE DIRECTORY
220 REM NUM=NUMBER OF SUBJECTS
230 REM IT=TRAINING AND INSTRUCTION BEHAVIOR SCORE SUM
240 REM DB=DEMOCRATIC BEHAVIOR SCORE SUM
250 REM AB=AUTOCRATIC BEHAVIOR SCORE SUM
260 REM SS=SOCIAL SUPPORT BEHAVIOR SCORE SUM
270 REM RB=REWARDING BEHAVIOR SCORE SUM
280 REM MTI=IT DIMENSION SCORE
290 REM MDB=DB DIMENSION SCORE
300 REM MAB=AB DIMENSION SCORE
310 REM MSS=SS DIMENSION SCORE
320 REM MRB=RB DIMENSION SCORE
322 REM BTI=IT SUM OF SQUARES
324 REM BDB=DB SUM OF SQUARES
326 REM BAB=AB SUM OF SQUARES
328 REM BSS=SS SUM OF SQUARES
330 REM BRB=RB SUM OF SQUARES
335 REM VTI=VARIANCE OF MTI
340 REM VDB=VARIANCE OF MDB
350 REM VAB=VARIANCE OF MAB
360 REM VSS=VARIANCE OF MSS
370 REM VRB=VARIANCE OF MRB
380 REM FTI=STANDARD DEVIATION OF MTI
390 REM FDB=STANDARD DEVIATION OF MDB
400 REM FAB=STANDARD DEVIATION OF MAB
410 REM FSS=STANDARD DEVIATION OF MSS
420 REM FRB=STANDARD DEVIATION OF MRB
430 REM TTI=SUM OF MTI
440 REM TDB=SUM OF MDB
450 REM TBA=SUM OF MAB
460 REM TSS=SUM OF MSS
470 REM TRB=SUM OF MRB
480 REM XTI=MTI SUM OF SQUARES
490 REM XDB=MDB SUM OF SQUARES
500 REM XAB=MAB SUM OF SQUARES
510 REM XSS=MSS SUM OF SQUARES
520 REM XRB=MRB SUM OF SQUARES
530 REM V1TI=VARIANCE OF GROUP MTI
540 REM V2DB=VARIANCE OF GROUP MDB
550 REM V3AB=VARIANCE OF GROUP MAB
560 REM V4SS=VARIANCE OF GROUP MSS
570 REM V5RB=VARIANCE OF GROUP MRB
580 REM S1TI=STANDARD DEVIATION OF GROUP MTI
590 REM S2DB=STANDARD DEVIATION OF GROUP MDB
600 REM S3AB=STANDARD DEVIATION OF GROUP MAB
610 REM S4SS=STANDARD DEVIATION OF GROUP MSS
620 REM S5RB=STANDARD DEVIATION OF GROUP MRB
630 REM M1TI=MEAN OF GROUP MTI
640 REM M2DB=MEAN OF GROUP MDB
650 REM M3AB=MEAN OF GROUP MAB
660 REM M4SS=MEAN OF GROUP MSS
670 REM M5RB=MEAN OF GROUP MRB
672 PRINT "(shift/CLR HOME)"
675 POKE53280,6
```

```
677 POKE53281,2
680 POKE646,15
682 PRINT"*******************************************"
684 PRINT"* *                                     * *"
686 PRINT"* *       THIS PROGRAM COMPUTES         * *"
688 PRINT"* *   INDIVIDUAL AND GROUP DIMENSION    * *"
670 PRINT"* *          SCORES FOR THE             * *"
672 PRINT"* *         LEADERSHIP SCALE            * *"
674 PRINT"* *            FOR SPORTS               * *"
676 PRINT"* *   CHELLADURAI, P. & SALEH, S. D.    * *"
678 PRINT"* *              (1980)                 * *"
680 PRINT"* *        BY DANIEL J. GARLAND         * *"
682 PRINT"* *       UNIVERSITY OF GEORGIA         * *"
684 PRINT"*******************************************"
700 FOR I=1 TO 5000
710 NEXT
720 PRINT"(shift/CLR HOME)"
730 INPUT"DO YOU WANT TO CREATE A DATA FILE (Y/N)";AN$
740 IF AN$="Y"THEN GOSUB 7000
750 PRINT"(shift/CLR HOME)"
760 PRINT"PLEASE INDICATE SOURCE OF DATA"
770 INPUT"DATA FROM KEYBOARD OR FILE, (K/F)";AN$
780 IF AN$="F" THEN GOSUB 5500
790 IF AN$="F" THEN GOSUB 5521
800 IF AN$="K" THEN GOSUB 6000
1000 MTI=IT/13
1010 MDB=DB/9
1020 MAB=AB/5
1030 MSS=SS/8
1040 MRB=RB/5
1050 VTI=(BTI-(IT*IT/13))/12
1060 VDB=(BDB-(DB*DB/9))/8
1070 VAB=(BAB-(AB*AB/5))/4
1080 VSS=(BSS-(SS*SS/8))/7
1090 VRB=(BRB-(RB*RB/5))/4
1100 FTI=SQR(VTI)
1110 FDB=SQR(VDB)
1120 FAB=SQR(VAB)
1130 FSS=SQR(VSS)
1140 FRB=SQR(VRB)
1450 PRINT"  LSS DIMENSION SCORES AND STANDARD  "
1455 PRINT"      DEVIATIONS FOR SUBJECT";NUM
1460 PRINT
1490 PRINT "TRAINING AND INSTRUCTION"
1495 Y=MTI:GOSUB 5000
1500 PRINT "DIMENSION SCORE    ";Y$:Y=VAL(Y$):MTI=Y:Y=0
1505 Y=FTI:GOSUB 5000
1510 PRINT"STANDARD DEVIATION  ";Y$:Y=VAL(Y$):FTI=Y:Y=0
1520 PRINT
1530 PRINT"DEMOCRATIC BEHAVIOR "
1535 Y=MDB:GOSUB 5000
1540 PRINT "DIMENSION SCORE    ";Y$:Y=VAL(Y$):MDB=Y:Y=0
1545 Y=FDB:GOSUB 5000
1550 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y$):FAB=Y:Y=0
1560 PRINT
1570 PRINT "AUTOCRATIC BEHAVIOR"
1575 Y=MAB:GOSUB 5000
1580 PRINT "DIMENSION SCORE    ";Y$:Y=VAL(Y$):MAB=Y:Y=0
1585 Y=FAB:GOSUB 5000
1590 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y$):FAB=Y:Y=0
1600 PRINT
```

```
1610 PRINT "SOCIAL SUPPORT"
1615 Y=MSS:GOSUB 5000
1620 PRINT "DIMENSION SCORE     ";Y$:Y=VAL(Y$):MSS=Y:Y=0
1625 Y=FSS:GOSUB 5000
1630 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y$):FSS=Y:Y=0
1640 PRINT
1650 PRINT "REWARDING BEHAVIOR"
1655 Y=MRB:GOSUB 5000
1660 PRINT "DIMENSION SCORE     ";Y$:Y=VAL(Y$):MRB=Y:Y=0
1665 Y=FRB:GOSUB 5000
1670 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y$):FRB=Y:Y=0
1672 FOR M=1 TO 5000
1674 NEXT M
1680 TTI=TTI+MTI
1690 TDB=TDB+MDB
1700 TBA=TBA+MAB
1710 TSS=TSS+MSS
1720 TRB=TRB+MRB
1730 XTI=XTI+MTI*MTI
1740 XDB=XDB+MDB*MDB
1750 XAB=XAB+MAB*MAB
1760 XSS=XSS+MSS*MSS
1770 XRB=XRB+MRB*MRB
1780 IT=0
1782 DB=0
1784 AB=0
1786 SS=0
1788 RB=0
1790 BTI=0
1792 BDB=0
1794 BAB=0
1796 BSS=0
1798 BRB=0
1825 RESTORE
1830 GOTO 790
1840 NUM=NUM-1
1850 V1TI=(XTI-(TTI*TTI/NUM))/(NUM-1)
1860 V2DB=(XDB=(TDB*TDB/NUM))/(NUM-1)
1870 V3AB=(XAB-(TBA*TBA/NUM))/(NUM-1)
1880 V4SS=(XSS-(TSS*TSS/NUM))/(NUM-1)
1890 V5RB=(XRB-(TRB*TRB/NUM))/(NUM-1)
1900 S1TI=SQR(V1TI)
1910 S2DB=SQR(V2DB)
1920 S3AB=SQR(V3AB)
1930 S4SS=SQR(V4SS)
1940 S5RB=SQR(V5RB)
1950 M1TI=TTI/NUM
1960 M2DB=TDB/NUM
1970 M3AB=TBA/NUM
1980 M4SS=TSS/NUM
1990 M5RB=TRB/NUM
2310 PRINT "LSS GROUP SCORES AND STANDARD DEVIATIONS"
2340 PRINT
2350 PRINT "TRAINING AND INSTRUCTION"
2355 Y=M1TI:GOSUB 5000
2360 PRINT "DIMENSION SCORE     ";Y$:Y=VAL(Y$):M1TI=Y:Y=0
2365 Y=S1TI:GOSUB 5000
2370 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y$):S1TI=Y:Y=0
2380 PRINT
2390 PRINT "DEMOCRATIC BEHAVIOR"
2395 Y=M2DB:GOSUB 5000
```

```
2400 PRINT "DIMENSION SCORE    ";Y$:Y=VAL(Y$):M2DB=Y:Y=0
2405 Y=S2DB:GOSUB 5000
2410 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y$):S2DB=Y:Y=0
2420 PRINT
2430 PRINT "AUTOCRATIC BEHAVIOR"
2435 Y=M3AB:GOSUB 5000
2440 PRINT "DIMENSION SCORE    ";Y$:Y=VAL(Y$):M3AB=Y:Y=0
2445 Y=S3AB:GOSUB 5000
2450 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y/):S3AB=Y:Y=0
2460 PRINT
2470 PRINT "SOCIAL SUPPORT"
2475 Y=M4SS:GOSUB 5000
2480 PRINT "DIMENSION SCORE    ";Y$:Y=VAL(Y$):M4SS=Y:Y=0
2485 Y=S4SS:GOSUB 5000
2490 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y$):S4SS=Y:Y=0
2500 PRINT
2510 PRINT "REWARDING BEHAVIOR"
2515 Y=M5RB:GOSUB 5000
2520 PRINT "DIMENSION SCORE    ";Y$:Y=VAL(Y$):M5RB=Y:Y=0
2525 Y=S5RB:GOSUB 5000
2530 PRINT "STANDARD DEVIATION ";Y$:Y=VAL(Y$):S5RB=Y:Y=0
2540 IF AN$="F" THEN GOTO 5592
2542 INPUT"DO YOU WANT TO SCORE MORE DATA, (Y/N)";AN$
2544 IF AN$="Y" THEN GOTO 720
2546 POKE 53280,14
2548 POKE 53281,6
2550 POKE 646,14
2552 PRINT"(shift/CLR HOME)"
2554 END
4000 REM SUBROUTINE TO OBTAIN SUMS OF
4005 REM INDIVIDUAL DIMENSIONS AND SUMS OF SQUARES
4020 IT=IT+D
4030 BTI=BTI+D*D
4040 RETURN
4100 DB=DB+D
4110 BDB=BDB+D*D
4120 RETURN
4200 AB=AB+D
4210 BAB=BAB+D*D
4220 RETURN
4300 SS=SS+D
4310 BSS=BSS+D*D
4320 RETURN
4400 RB=RB+D
4410 BRB=BRB+D*D
4420 RETURN
5000 REM SUBROUTINE TO ROUND OFF VALUES
5010 Y=INT(1000*Y+.5)/1000
5011 Y$=STR$(Y)
5020 RETURN
5500 OPEN 15,8,15:REM SEQUENTIAL FILE
5505 INPUT"FILENAME FOR DATA";FI$
5510 OPEN 1,8,2,"0:"+FI$+",S,R"
5514 DIM N(I)
5520 GOSUB 5900: REM CHECK FOR DISK ERROR
5521 NUM=NUM+1
5525 FOR I=1 TO 40
5530 INPUT#1,D
5540 PRINT D
5541 IF D=99 GOTO 1840
5542 READ N
```

```
5543 DATA 1,2,4,5,1,3,4,1,2,5,1,3,4,1
5544 DATA 2,5,1,2,4,1,2,4,1,2,4,1,3,5
5545 DATA 1,2,4,1,2,3,1,4,5,1,2,3
5550 ON N GOSUB 4000,4100,4200,4300,4400
5560 IF ST=0 THEN NEXT I
5580 GOSUB 5900
5590 GOTO 1000
5592 CLOSE 1
5595 CLOSE 15
5600 INPUT"DO YOU WANT TO SCORE MORE DATA, (Y/N)";AN$
5610 IF AN$="Y" THEN GOT 720
5620 POKE53280,14
5630 POKE53281,6
5640 POKE 646,14
5650 PRINT"(shift/CLR HOME)"
5660 END
5900 INPUT#15,A,B$,C,D
5910 IF A THEN PRINT A,B$,C,D:STOP
5920 RETURN
6000 REM SUBROUTINE FOR KEYBOARD
6010 NUM=NUM+1
6030 FOR I=1 TO 40
6040 PRINT "ENTER SCORE FOR SUBJECT";NUM;"ITEM";I
6050 PRINT "ENTER '99' TO OBTAIN GROUP RESULTS"
6070 INPUT D
6080 IF D=99 GOTO 1840
6090 READ N
6100 DATA 1,2,4,5,1,3,4,1,2,5,1,3,4,1
6110 DATA 2,5,1,2,4,1,2,4,1,2,4,1,3,5
6120 DATA 1,2,4,1,2,3,1,4,5,1,2,3
6130 ON N GOSUB 4000,4100,4200,4300,4400
6140 NEXT I
6150 RETURN
7000 REM LSS SEQUENTIAL FILE
7010 OPEN 15,8,15
7015 INPUT"FILENAME FOR DATA";FI$
7020 OPEN 1,8,2,FI$+",S,W"
7030 GOSUB 7500:REM CHECK FOR DISK ERROR
7031 NUM=NUM+1
7034 FOR I=1 TO 40
7036 PRINT"ENTER SCORE OF SUBJECT";NUM;"ITEM";I
7040 INPUT D
7050 INPUT "IS THIS CORRECT (Y/N)";AN$
7060 IF AN$="Y" THEN 7036:REM CORRECT IT
7070 PRINT#1,D;CHR$(13);
7080 PRINT
7090 INPUT "MORE DATA (Y/N)";AN$
7100 IF AN$="Y" THEN NEXT I: GOTO 7031
7110 CLOSE 1: GOSUB 7500
7120 CLOSE 15: GOTO 720
7500 INPUT#15,A,B$,C,D
7510 IF A THEN PRINT A,B$,C,D:STOP
7520 RETURN
8000 REM CHELLADURAI, P. AND SALEH, S. D. (1980). DIMENSIONS
8010 REM OF LEADER BEHAVIOR IN SPORTS: DEVELOPMENT OF A
8020 REM LEADERSHIP SCALE. JOURNAL OF SPORT PSYCHOLOGY,
8030 REM 2(1), 34-45
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